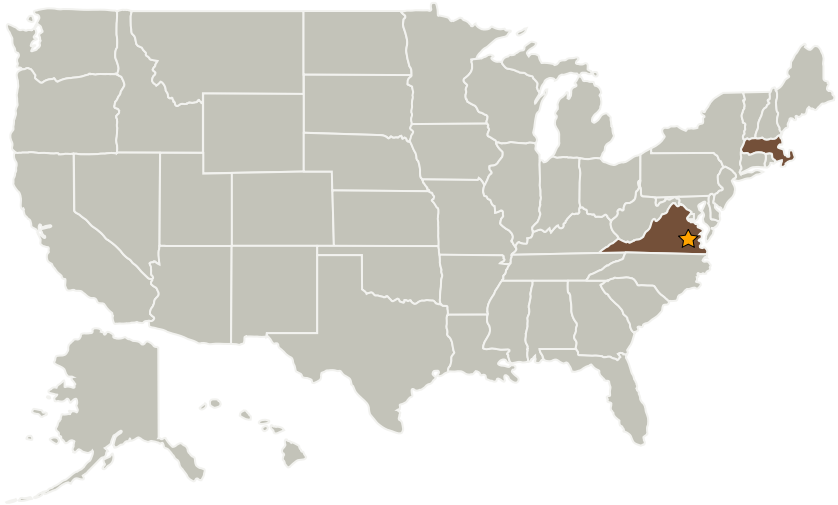
Certification of the COTS Engine and Naturalistic Flight Deck Systems for the Next Generation of Small Aircraft, Phase II

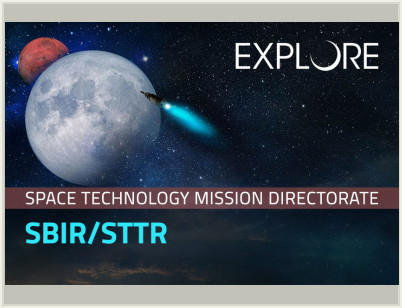
Completed Technology Project (2006 - 2008)

Project Introduction

We intend to perform a 'Demonstration' Certification of a COTS automotive engine, including and focusing on what is likely to be one of the most challenging aspects of the FAA Engine Certification, the FAA approval of a COTS automotive Engine Control Unit (ECU). The COTS automotive based ECU is the most technically challenging system due, not only to the design and manufacturing processes employed in the mass production of the ECU, but because of the 'criticality' of the ECU in the functions it performs on the COTS engine, and the 'criticality' of the ECU when it is integrated within the aircraft system, for the safety of flight. In addition the COTS automotive ECU contains complex electronic hardware and software, and employs mass production processes, with advanced manufacturing technologies and packaging techniques, which are not currently employed in the production of commercial aviation flight critical digital electronic systems today. We are confident that the approach taken for the 'Demonstration' Certification of the COTS engine, and the COTS ECU, can then be 'leveraged' into achieving FAA approval of not only all other aspects of the propulsion system, but also into the aircraft flight control systems, including the flight deck electronics, displays, communication and navigation systems.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
NexTechnologies International Corporation	Supporting Organization	Industry	Westford, Massachusetts

Primary U.S. Work Locations	
Massachusetts	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.3 Aero Propulsion
    - TX01.3.11 Engine Icing